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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

STORM, DONALD L

ART UNIT

PAPER NUMBER

2654

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/482,277

Applicant(s)

LAURILA ET AL.

Examiner

Donald L. Storm

Art Unit

2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on January 13, 2000 through July 27, 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 5, 8, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 2-4, 6, 7 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 & 5. 6) ☐ Other:

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file: certified copy of Finland Application Number 990078 and certified English translation of Finnish Patent Application 990078 (paper 2).

Response to Amendment

2. The PRELIMINARY AMENDMENT, filed January 13, 2000 (paper 4), has been entered.

Information Disclosure Statement

3. A copy of the International Search Report (Form PCT/ISA/210) (paper 5) and the copies of the documents are present in the application file, and they have been considered by the Examiner.
4. A copy of the Finnish Office Action (paper 3), its translation, and the copies of the documents are present in the application file, and they have been considered by the Examiner.

Specification

5. The title is objected to because it is not sufficiently descriptive of the invention. A new title is required that is clearly indicative of the invention to which the claims are directed. See MPEP § 606.01. The Examiner suggests that the Applicant consider a title including these elements: "A Subband Method and Apparatus for Determining Speech Pauses Adapting to Background Noise Variation."

6. The abstract is objected to because it does not clearly identify what the Applicant considers newly disclosed technical matter in the art to which it pertains. A cursory inspection of the abstract should inform readers of the nature and gist of the technical content of the improvement. The discussion at page 11, lines 12-33 suggests that the gist of what the Applicant considers the invention is found here. The Examiner suggests that page 11, lines 12-33 could be summarized and put in abstract-style language for conveying the nature of the technical content.

7. The specification is objected to under 37 CFR 1.84(p)(5) because using reference characters in the description that are not shown in the drawings introduces confusion. Appropriate correction is required. The description includes at least the following reference sign(s) that are not shown in the drawings: 301 to 308 (page 6).

8. The Examiner notes, without objection, the possibility of informalities in the abstract. The Applicant may wish to consider changes during normal review and revision of the disclosure.

The phrase "Fig. 1" is unconnected to the subject matter. It's intent is ambiguous when not accompanied by appropriate figures.

9. The Examiner notes, without objection, that this application is informal in the arrangement of the specification. The following guidelines illustrate the preferred layout and content for patent applications, and items should appear in upper case, without underlining or bold type, as section headings. It is in the best interests of the patent community that the Applicant be aware of these editorial situations and consider changes during normal review and revision of the disclosure.

In current Office practice, explained in MPEP § 608.01(a), the specification should contain:

<u>Title of the Invention:</u>	at the top of the first page of the specification,
<u>Reference to compact disc</u>	see 37 CFR 1.52(e)(5)
<u>Background of the Invention:</u>	two parts,
<u>Field of the Invention:</u>	may also be titled "Technical Field,"
<u>Description of the Related Art:</u>	may also be titled "Background Art,"
<u>Brief Summary of the Invention:</u>	
<u>Brief Description of the Drawings:</u>	
<u>Detailed Description of the Invention:</u>	
<u>Claim or Claims:</u>	commence on separate sheet, each element or step of the claim should be separated by a line indentation; there may be plural indentations to further segregate subcombinations or related steps,
<u>Abstract of the Disclosure:</u>	on a separate sheet, narrative of the claimed matter.

10. The Examiner notes, without objection, that page 1, page 2, and page 3 of the specification have explicit reference to the claims by claim number. As the claim numbers related to this subject matter may change by amendment to the claims or by renumbering at the time of allowance, it may develop that reference to the claims by number may refer a claim incorrectly. It is in the best interests of the patent community that the Applicant be aware of these editorial situations and consider changes during normal review and revision of the specification.

Claim Informalities

11. Claims 2-4, 6-7, and 9 are objected to as being (directly or indirectly) dependent upon a rejected base claim. See MPEP § 608.01(n)V.

12. The form of the claims does not follow Office practice. While there is no set statutory form for claims, the present Office practice is to insist that each claim must be the object of a

sentence starting with "I (or we) claim", "The invention claimed is", or the equivalent. The Applicant is encouraged to insert a desired introduction before claim 1. If, at the time of allowance, appropriate terminology is not present, it is inserted by the technical staff. See MPEP § 608.01(m).

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Forse

14. Claims 1, 5, 8, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Forse [US Patent 4,912,766].

15. Regarding claim 8, Forse [at column 7, lines 4-5] describes a speech command recognizer embodiment recognizable as a whole to one versed in the art by explicitly describing the following elements:

means [at column 2, lines 44-54, as microphone, filter bank, A/D, controlling microprocessor & at column 3, line 15, as memory];

for converting speech into an electrical signal [at column 1, lines 47-50, as input speech, extract, and digitize];

the speech is commands uttered by a user [at column 5, lines 48-60, as voiced commands];

for dividing the spectrum into sub-bands [at column 2, lines 46-47, as filter bank divides into frequency bands];

for storing samples of the subband signals [at column 3, lines 14-15, as stored energy level information in memory];

the subbands are stored at intervals [at column 2, lines 57-58, as store a time slot];

for determining subband energy levels on the basis of the stored samples [at column 3, lines 13-18, as magnitudes of stored spectral values are normalized energy levels which have been stored];

for determining a power threshold [at column 3, lines 31-40, as threshold set using time slot energy];

for comparing subband energy with the threshold [at column 3, lines 37-49, as scan until the energy exceeds the threshold];

and for detecting a pause in the speech on the basis of the comparison results [at column 4, lines 49-51, as determine the finish points of speech from scanning using the new threshold].

16. Regarding claim 10, Forse also describes:

means for filtering the sub-bands before storing [at column 2, lines 45-54, as low pass filters for smoothing from which the signal passes to the controlling microprocessor & column 3, lines 13-16, as signals are stored in association with the microprocessor].

17. Claim 11 sets forth limitations similar to claim 8. Forse describes the limitations as indicated there. Forse also describes an embodiment of a wireless communications device [at column 4, lines 59-50, as cellular radio telephone].

18. Claim 1 sets forth a method with limitations comprising the functionality associated with using the apparatus recited in claim 8. Because Forse describes the similar limitations as indicated there, this claim thus is anticipated accordingly.

19. Regarding claim 5, Forse also describes:

the power threshold is calculated adaptively using environmental noise at each instant [at column 3, lines 31-39, as set the threshold by multiplying the noise energy maximum found by comparing energy of time slots].

Allowable Subject Matter

20. Claims 2-4, 6-7, and 9 recite allowable subject matter when considered with the limitations of the base claims and intervening claims.

21. The following is a statement of reasons for the indication of allowable subject matter:

a. Regarding claim 9, the closest prior art that was found (Forse, Vähatälo) does not describe a difference between greatest power minimum and the smallest power maximum, when this claimed matter is considered as a whole with the other claim limitations, particularly the threshold calculation value using stored samples of sub-bands. Forse describes finding the maximum energy of speech and Vähatälo describes the difference between the maximum and minimum values of energy, but they do not provide evidence relevant to an objective teaching, motivation, or suggestion to select and combine references holding the whole specific subject matter of these claims obvious to one of ordinary skill in the art of speech thresholding.

b. Regarding claim 2, and by dependency claim 3, the closest prior art that was found (Forse, Vilmur) does not describe thresholding how many sub-bands the energy level was below a threshold to make a pause detection decision, when this claimed matter is considered as a whole with the other claim limitations, particularly when sub-band specific detection reaches a calculated length longer than a detection time limit . Forse uses 20 consecutive subband samples to set a time limit of pause determination and Vilmur implies that uncounted subbands at each frame do not contain speech energy, but they do not provide evidence relevant to an objective teaching, motivation, or suggestion to select and combine references holding the whole specific subject matter of these claims obvious to one of ordinary skill in the art of speech endpointing.

c. Claim 4 at least sets forth allowable material similar to claim 9.

d. Regarding claim 6, and by dependency claim 7, the closest prior art that was found (Forse, Vähätalo) does not describe a modification of the greatest power minimum and the smallest power maximum, when this claimed matter is considered as a whole with the other claim limitations, particularly where the update coefficient value is determined using the greatest power level and the smallest power level of stored samples of sub-bands. Forse describes finding the maximum energy of speech and Vähätalo describes the difference between the maximum and minimum values of energy, but they do not provide evidence relevant to an objective teaching, motivation, or suggestion to select and combine references holding the whole specific subject matter of these claims obvious to one of ordinary skill in the art of speech thresholding.

Conclusion

22. The following references made of record and not relied upon are considered pertinent to applicant's disclosure:

Dubnowski et al. [US Patent 4,015,088] compares speech energy in time intervals to thresholds that are adapted using lesser of two maximum values which then determine a maximum energy during silence.

Vilmur et al. [EP 0 380 563 B1] determines speech intervals and nonspeech intervals, including determining stored frame data of tonal noise by counting high-energy, high frequency subbands for the frame.

23. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for formal communications intended for entry)

Or:

(703) 872-9314, (for informal or draft communications, and please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L. Storm, of Art Unit 2654, whose telephone number is (703)305-3941. The examiner can normally be reached on weekdays between 8:00 AM and 4:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Marsha D. Banks-Harold can be reached on (703)305-4379. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office at telephone number (703)306-0377.

April 2, 2003

Donald L. Storm
Donald L. Storm
Patent Examiner
Art Unit 2654